



# UNITED STATES PATENT AND TRADEMARK OFFICE

*len*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,987	02/11/2004	Johannes Martinus Dina Goossens	120329-3	6090
43248 7590 01/18/2008 CANTOR COLBURN LLP - SABIC (LEXAN/CYCOLOY) 20 Church Street 22nd Floor Hartford, CT 06103				
			EXAMINER WOLLSCHLAGER, JEFFREY MICHAEL	
			ART UNIT 1791	PAPER NUMBER
			MAIL DATE 01/18/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/777,987	<b>Applicant(s)</b> GOOSSENS ET AL.	
	<b>Examiner</b> Jeff Wollschlager	<b>Art Unit</b> 1791	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 November 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-11,13-18,20,22-24 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-11,13-18,20,22-24 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 14, 2007 has been entered.

### ***Response to Amendment***

Applicant's amendment to the claims filed November 14, 2007 has been entered. Claim 19 has been canceled. Claims 1, 23, 24, and 27 are currently amended. Claims 1, 4-11, 13-18, 20, 22-24, and 27 are pending and under examination.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4-11, 13-15, 18-20, 23, 24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vetter (US 4,707,393) in view of McCloskey et al. (US 6,184,335) and Numrich et al. (US 6,613,264).

Regarding claims 1, 23, 24 and 27, Vetter teaches the basic claimed process of extruding a multiwall thermoplastic sheet wherein the core section (11) that forms the multiwall sheet is polycarbonate and the extruded multiwall thermoplastic sheet made of polycarbonate comprises a plurality of continuous hollow chambers (Figure; Abstract; col. 2, lines 18-68). Vetter teaches the polycarbonate resin is usually derived from bisphenol A, a dihydric phenol, and further teaches that all polycarbonate resins which can be extruded into panels of high toughness and transparency are suited for use as the core layer. (col. 3, lines 1-5). Vetter further discloses that light transmission is a critical element of the employed polycarbonate (col. 3, lines 9-10). Vetter does not teach extruding through a melt filter or does he teach employing the claimed polycarbonate.

However, McCloskey et al. teach that melt polycarbonates made of dihydric phenols and diesters of carbonic acid (col. 1, lines 35-38; col. 4, lines 35-50; and col. 4, line 60-col. 5, line 6) having a low Fries content (col. 2, lines 58-65) produced according to their disclosed method yield polycarbonates that have better rheological properties (col. 2, lines 48-57), and have a more consistent color (col. 1, lines 43-50). McCloskey et al. further disclose the average molecular weight for fabricating sheet materials from the disclosed polycarbonate are about 25,000 to about 30,000 (col. 5, lines 45-50). Additionally, Numrich et al. disclose a process of extruding polycarbonate wherein the polycarbonate is extruded through a filter having a mesh

size of 5 to 50  $\mu\text{m}$  in order to reduce contamination from the polycarbonate melt (col. 3, lines 15-20).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the polycarbonate disclosed by McCloskey et al. in the method disclosed by Vetter for the purpose of producing a mulitwall sheet with improved color consistency as suggested by both Vetter and McCloskey et al. and to have extruded the melt through a filter to reduce contamination of the polycarbonate melt as suggested by Numrich et al.

Further, the combination employs the same claimed materials and the same claimed steps. Accordingly, the same claimed physical properties and effects (i.e. standard deviation in mass per unit area of less than about 2%) would be realized by the practice of the combined method

As to claims 4 and 5, McCloskey et al. teach Fries contents of less than 200 ppm (col. 2, lines 48-65).

As to claims 6-8, McCloskey et al. teach the molecular weight of the product depends on the intended use and suggests a range of about 25,000 to about 30,000 for sheet materials (col. 5, lines 45-50).

As to claim 9, McCloskey et al. teach the claimed dihydric phenol (col. 3, lines 40-col. 4, line 21).

As to claim 10, McCloskey et al. preferentially disclose bisphenol A and diphenyl carbonate as raw materials for the polymerization (claim 7, col. 4, lines 35-50; col. 5, lines 4-6; col. 1, lines 35-51). The claimed repeating unit is formed from the polymerization of these materials.

As to claim 11, McCloskey et al. disclose polycarbonates made from the same raw materials and having the same polymeric molecular weight. It follows that the melt index ratio of the materials is the same.

As to claims 13 and 14, Vetter discloses the multilayer sheet consists of polycarbonate (col. 2, lines 62-64).

As to claim 15, McCloskey et al. teach the polycarbonate composition itself comprises a variety of additives (col. 6, line 60- col. 7, line 3). Vetter also discloses UV absorbers, and tints/pigments may be added (col. 2, line 62-68; col. 3, lines 1-10).

As to claim 18, McCloskey et al. teach the polycarbonate is not contaminated with chlorine (col. 1, lines 42-50).

As to claim 20, the combination employs the same claimed materials and practices the same claimed method steps. It follows that the combination realizes the same claimed effects and physical properties.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vetter (US 4,707,393) in view of McCloskey et al. (US 6,184,335) and Numrich et al. (US 6,613,264), as applied to claims 1, 4-11, 13-15, 18-20, 23, 24 and 27 above, and further in view of Mestanza (US 6,124,422).

As to claims 16 and 17, the combination teaches the method of claim 15 as set forth above. The combination does not expressly disclose details of how the additives are added. However, Mestanza discloses that it is known in the art of producing polycarbonate to add additives as a mixture and/or as a compacted blend (col. 2, line 62 – col. 3, line 47). Additionally, the examiner asserts that such means of introducing additives are conventional and well-known in the art.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have added the additives to the polycarbonate composition as set forth in the combination above either as a mixture or as a compacted blend as disclosed by Mestanza for the purpose, as suggested by Mestanza, of reducing the amount of powders to be processed as is routinely practiced in the art.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vetter (US 4,707,393) in view of McCloskey et al. (US 6,184,335) and Numrich et al. (US 6,613,264) as applied to claims, 1, 4-11, 13-15, 18-20, 23, 24 and 27 above, and further in view of Rosato (Extruding Plastics – A Practical Processing Handbook).

As to claim 22, the combination teaches the method of claim 1 as set forth above. Vetter does not expressly disclose the extrusion temperature. However, the examiner asserts that the selection of the temperature at which to extrude the polycarbonate would have been readily optimized as a result effective variable as evidenced by Rosato who teaches that polycarbonate is conventionally extruded in a range of 280- 310 °C (Table 3.1) and that the temperature during extrusion is adjusted as required to eliminate surging, gel formation and melt fracture (Table 2.15).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have optimized the extrusion temperature while practicing the method of Vetter for the purpose, as disclosed by Rosato, of minimizing surging, gel formation and melt fracture as is routinely practiced in the art. The examiner further notes that the claimed range overlaps the conventional range of extruding polycarbonate disclosed by Rosato.

### ***Response to Arguments***

Applicant's arguments filed November 14, 2007 have been fully considered, but they are not persuasive. Applicant argues that there is no motivation to combine Vetter and McCloskey. This argument is not persuasive. The examiner notes that Vetter is directed to extruding multi-walled polycarbonate sheets. McCloskey discloses a melt-polymerized polycarbonate and states in the reference that it is suitable for use in sheet products. More importantly, the polycarbonate of McCloskey provides the benefits of melt-polymerized polycarbonates (col. 1, lines 42-51) while eliminating the typical higher Fries content of melt polymerized polycarbonates, thereby yielding a product with better or non-degraded rheological properties (col. 2, lines 41-col. 3, lines 40) which is very desirable in polycarbonate (col. 3, lines 34-40).

Applicant further argues that the examiner is missing a critical difference between single wall and multi-wall sheets. This argument is not persuasive. The examiner submits that McCloskey et al. provide motivation to employ their polycarbonate in sheet products, generally, as set forth above. The examiner submits that one having ordinary skill would have had a reasonable expectation of success of employing various grades of polycarbonate in Vetter's method of making a specific type of sheet product (i.e. multi-walled sheet).

Applicant further argues that unexpected results have been demonstrated in achieving a product having a relative standard deviation in mass per unit area of less than about 2%. This argument is not persuasive. The combination employs the same claimed materials in the same claimed manner. The effects and physical properties of the product produced by the method set forth in the combination would intrinsically be realized. As such, the results are expected.



**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager  
Examiner  
Art Unit 1791

January 17, 2008

  
CHRISTINA JOHNSON  
SUPERVISORY PATENT EXAMINER